ABSTRACT OF THE DISCLOSURE

A method for modulating the E-field of an optical carrier signal utilizes a Mach-Zehnder modulator having a pair of independently controllable branches. A pair of independent branch drive signals $V_L(t)$ and $V_R(t)$ are derived. Each branch of the MZ modulator is driven with a respective one of the independent branch drive signals. By this means, a low cost conventional MZ modulator (interferometer) can be used to perform complex modulation of the E-field of the optical carrier. In some embodiments, this functionality is used to facilitate precompensation of optical impairments of an optical communications system.